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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SMITH, PETER J	

ART UNIT	PAPER NUMBER
2176	10

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/535,441	PANDA, CHINMOY	
	Examiner	Art Unit	
	Peter J Smith	2176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 27-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 27-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 March 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communications: amendment filed 2/5/2004, amendment filed on 10/27/2003, application filed on 03/23/2000.

2. Claims 13-26 and claim 41 have been cancelled.

3. Claims 1-12 and 27-40 are pending in the case. Claim 1, 27, and 29 are independents claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2, 6, 8-11, 27-28, 29-30, 34, and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho et al. (hereafter referred to as Ho), US 6,021,412 filed 4/2/1996 in view of Shiiyama et al. (hereafter referred to as Shiiyama), US 6,247,009 B1 filed 3/9/1998 and Rosenbaum, US 5,404,435 patented 4/4/1995.

Regarding independent claims 1, 27, and 29, Ho teaches extracting one or more document keywords from a document in col. 1 lines 50-55. Ho also teaches collecting one or more images associated with the document in col. 1 line 55 – col. 2 line 5, but Ho does not teach that the images have a location in the document. Although Ho teaches matching concept keywords to images, Ho does not teach is generating a proximity factor for each image and each document keyword that reflects the degree of correlation between the image and the document

keyword. Although Ho teaches determining the importance of each image to a document, Ho does not teach determining the importance of each of the plurality of images according to an image metric that combines the proximity factors for each document keyword and image pair.

Shiiyama teaches an image query method which includes comparing a keyword or keywords to an image and generating a correlation, which Shiiyama calls a matching rate, between the image and the keyword or keywords in fig. 4, col. 3 lines 65-67, col. 5 line 6 – col. 6 line 36, col. 7 lines 40-58, col. 8 line 65 – col. 9 line 1, and col. 10 line 24 – col. 11 line 19. Shiiyama teaches combining proximity factors of multiple keywords in order to determine the importance of an image in fig. 4, col. 5 line 6 – col. 6 line 36, col. 8 line 65 – col. 9 line 1, and col. 10 line 24 – col. 11 line 19. The matching rates of a plurality of keyword and image pairs are sorted to present the user with the most desirable images.

Rosenbaum teaches collecting non-text objects, such as image objects, from a document in the abstract and col. 1 line 67 – col. 2 line 2. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Rosenbaum into Ho to have created the claimed invention. It would have been obvious to have collected the images from a document to make the images more readily available. It would have further been obvious to one of ordinary skill in the art at the time of the invention to have determined the importance of the plurality of images collected from the document using the keyword identification taught by Ho to create a proximity factor for each of the plurality of images as is taught by Shiiyama. Using the sorted results based on matching factor taught by Shiiyama, it would have been obvious to one of ordinary skill to have enabled the presentation of the images collected from the document to the user in order of importance based on the correlations of the keyword and images.

Regarding dependent claims 2 and 30, Ho teaches presenting images determined to be important on a display device in col. 6 lines 18-20. Ho does not teach that these images are located in the document, however Rosenbaum teaches collecting non-text objects, such as image objects, from a document in the abstract and col. 1 line 67 – col. 2 line 2. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Rosenbaum into Ho to have created the claimed invention. It would have been obvious and desirable to have collected the images from a document make the images available so that their importance could have been determined.

Regarding dependent claims 6 and 34, Ho teaches identifying image text associated with each image of the plurality of images in Fig. 5 item 506 and Fig. 6 and col. 1 lines 47-50. Ho does not teach that these images are located in the document, however Rosenbaum teaches collecting non-text objects, such as image objects, from a document in the abstract and col. 1 line 67 – col. 2 line 2. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Rosenbaum into Ho to have created the claimed invention. It would have been obvious and desirable to have collected the images from a document make the images available so that their importance could have been determined.

Regarding dependent claims 8 and 36, Ho teaches searching the metadata information associated with the image for text describing the image in Fig. 5 item 506 and col. 1 lines 47-50. Ho does not teach that these images are located in the document, however Rosenbaum teaches collecting non-text objects, such as image objects, from a document in the abstract and col. 1 line 67 – col. 2 line 2. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Rosenbaum into Ho to have created the claimed

invention. It would have been obvious and desirable to have collected the images from a document make the images available so that their importance could have been determined.

Regarding depend claims 9 and 37, Ho does not explicitly teach that the metadata information is compatible with hypertext markup language. One of ordinary skill in the art at the time of the invention would have known how to make metadata compatible with hypertext markup language. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the their knowledge with Ho to have created the claimed invention. It would have been obvious and desirable to use hypertext markup language compatible metadata because hypertext markup language is the most common form of storing metadata and it would have been advantageous to use it to create an invention compatible with well known standards.

Regarding dependent claims 10 and 38, Ho teaches matching concept words to images, but does not explicitly teach lexically analyzing the image text associated with the image and the keyword to determine the degree of correlation between the image and the keyword. Shiiyama does teach lexically analyzing the image text associated with the image and the keyword to determine the degree of correlation between the image and the keyword in fig. 4, col. 3 lines 65-67, col. 5 line 6 – col. 6 line 36, col. 7 lines 40-58, col. 8 line 65 – col. 9 line 1, and col. 10 line 24 – col. 11 line 19.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Shiiyama into Ho to have created the claimed invention. It would have been obvious and desirable to determine the degree of correlation between the keywords and the images to best determine the most important images in the document, just as an image

search query determines the degree of correlation between search keywords and images to present a user with the most desirable images in a database.

Regarding dependent claims 11 and 39, Ho teaches matching concept words to images, but does not explicitly teach performing a phonetic comparison between the image text associated with the image and the document keyword to determine the degree of correlation between the image and the document keyword. Shiiyama does teach performing a phonetic comparison between the image text associated with the image and the document keyword to determine the degree of correlation between the image and the document keyword in fig. 4, col. 3 lines 65-67, col. 5 line 6 – col. 6 line 36, col. 7 lines 40-58, col. 8 line 65 – col. 9 line 1, and col. 10 line 24 – col. 11 line 19.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Shiiyama into Ho to have created the claimed invention. It would have been obvious and desirable to determine the degree of correlation between the keywords and the images to best determine the most important images in the document, just as an image search query determines the degree of correlation between search keywords and images to present a user with the most desirable images in a database.

Regarding dependent claim 28, Ho teaches presenting images determined to be important on a display device in col. 6 lines 18-20. Ho does not teach that these images are located in the document, however Rosenbaum teaches collecting non-text objects, such as image objects, from a document in the abstract and col. 1 line 67 – col. 2 line 2. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Rosenbaum into Ho to have created the claimed invention. It would have been obvious and

desirable to have collected the images from a document make the images available so that their importance could have been determined.

5. Claims 3-5 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho et al. (hereafter referred to as Ho), US 6,021,412 filed 4/2/1996 in view of Shiiyama et al. (hereafter referred to as Shiiyama), US 6,247,009 B1 filed 3/9/1998 and Rosenbaum, US 5,404,435 patented 4/4/1995 as applied to claims 1 and 29 above, and further in view of Dutta, US 6,480,837 B1 filed 12/16/1999.

Regarding dependent claims 3 and 31, Ho does not teach ordering the document keywords according to an ordering criterion or weighting the proximity factor associated with each document keyword and image pair based on the order of the document keyword. Dutta does teach ordering the document keywords according to an ordering criterion and weighting the proximity factor associated with each document keyword and image pair based on the order of the document keyword in Fig. 2.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Dutta into Ho in view of Shiiyama and Rosenbaum to have created the claimed invention. It would have been obvious and desirable to order and weight the keywords according to a popularity weight naturally the keyword-image pairs of the more popular keywords were more popular than the keyword-image pairs of the less popular keywords.

Regarding dependent claims 4 and 32, Ho does not teach that the frequency that each document keyword appears in the document determines the ordering criterion used to order the document keywords. Dutta does teach that the frequency that each document keyword appears

in the document determines the ordering criterion used to order the document keywords in col. 1 lines 23-37.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Dutta into Ho in view of Shiiyama and Rosenbaum to have created the claimed invention. It would have been obvious and desirable to order and weight the keywords according to a popularity weight naturally the keyword-image pairs of the more popular keywords were more popular than the keyword-image pairs of the less popular keywords.

Regarding dependent claims 5 and 33, Ho does not teach that the ordering criterion orders the document keywords according to their relationship with the subject matter of the document. Dutta does teach that the ordering criterion orders the document keywords according to their relationship with the subject matter of the document in col. 4 lines 25-42.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Dutta into Ho in view of Shiiyama and Rosenbaum to have created the claimed invention. It would have been obvious and desirable to order and weight the keywords according to a popularity weight naturally the keyword-image pairs of the more popular keywords were more popular than the keyword-image pairs of the less popular keywords.

6. Claims 7 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho et al. (hereafter referred to as Ho), US 6,021,412 filed 04/02/1996 in view of Shiiyama et al. (hereafter referred to as Shiiyama), US 6,247,009 B1 filed 3/9/1998 and Rosenbaum, US 5,404,435 patented 04/04/1995 as applied to claims 6 and 34 above, and further in view of Matsumoto, US 6,526,170 filed 12/13/1994.

Regarding dependent claims 7 and 35, Ho does not teach scanning a bit-mapped representation of the image for text information or converting the bit-mapped representation of the text information into image text. Matsumoto does teach scanning a bit-mapped representation of the image for text information and converting the bit-mapped representation of the text information into image text in Fig. 7 and col. 1 lines 23-25.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Matsumoto into Ho in view of Shiiyama and Rosenbaum to have created the claimed invention. It would have been obvious and desirable to extract text from the image itself and use that to match with the keywords so that the image-keyword match would further increase in accuracy.

7. Claims 12 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho et al. (hereafter referred to as Ho), US 6,021,412 filed 04/02/1996 in view of Shiiyama et al. (hereafter referred to as Shiiyama), US 6,247,009 B1 filed 3/9/1998 and Rosenbaum, US 5,404,435 patented 04/04/1995 as applied to claims 1 and 29 above, and further in view of Cullen et al. (hereafter referred to as Cullen), US 6,397,213 B1 filed 5/12/1999.

Regarding dependent claims 12 and 40, Ho does not teach identifying the location of the image in the document, measuring the distance in the document between the image and the document keyword, or determining the correlation between the document keyword and the image according to the distance between the document keyword and the image. Cullen does teach determining the distance between an image in a document and a keyword in the document in fig. 4, 8C, col. 2 line 66 – col. 3 line 3, and col. 9 lines 8-19. The distance is determined

manually by a user in Cullen through repeating a series of mouse clicks to discover the distance between the keyword and the image. However, this could have easily been automated by one of ordinary skill in the art since the coordinates of both the image and the keywords are known.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined Cullen into Ho in view of Shiiyama and Rosenbaum to have created the claimed invention. It would have been obvious and desirable for one of ordinary skill in the art at the time of the invention to have used to the image-keyword distance determination taught by Cullen to have modified the calculation of the correlation for the keyword-image pair taught by Shiiyama so that the keywords nearby an image, and probably related to the image would have had higher importance than the images far away from the keywords in the document. This would have generally caused the image metric to determine that important images within the document are located near the highest concentrations of keywords in the document. Cullen demonstrates the importance of this as the mouse clicking action expanding the keyword search radius is used to determine how close and how many keywords are located near the target image.

Response to Arguments

8. Applicant's arguments with respect to claims 1-13 and 27-40 have been considered but are moot in view of the new ground(s) of rejection. The Examiner has applied Shiiyama in place of Sciammarella in the rejection of claims 1-2, 6, 8-11, 27-28, 29-30, 34, and 36-39. Shiiyama teaches correlating one or more keywords to an image and sorting the images for presentation to a user based on the respective correlations of each keyword-image pair. The Examiner has additionally introduced Cullen in the rejection of claims 12 and 40. Cullen teaches determining a distance between an image contained in a document and document keywords. The coordinates within the document of both the image and the keywords are known by Cullen.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takata et al., US 6,526,400 B1 filed 9/30/1999 discloses an image search apparatus which acquires associative words in relation to an input query word, and makes a keyword search of image information on the basis of the obtained associated words and input query word. Barber et al., US 5,751,286 patented 5/12/1998 discloses an image query system.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Smith whose telephone number is 703-305-5931. The examiner can normally be reached on Mondays-Fridays 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph H Feild can be reached on 703-305-9792. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PJS
May 13, 2004

JOSEPH FEILD
SUPERVISORY PATENT EXAMINER